

Secretary of State Data Center Infrastructure Overview

The SOS maintains a Tier 2¹ data center at the headquarters location. The facility includes infrastructure hardware, data & telecommunication connections, environmental controls and monitoring and security devices.

The SOS Data Center follows TIA-942, Telcordia GR-3160 specifications and the ASHRAE Guidelines for environmental management. The Data Center is a raised floor facility with controlled access and 24x7x365 recorded video surveillance and temperature, humidity and water-penetration monitoring. Fire suppression is provided by 2-stage dry pipes. The addition of a clean agent, gaseous fire suppression system (Argonite/Inergen) is in the planning stages. The raised floor supports an 18" plenum for power and cooling. HVAC is provided by 5 multi-ton CRAC units. The CRAC units are supplemented by "green" environmental controls to continuously monitor and adjust cooling throughout the room. The raised floor has a rating of 250 pounds per square foot and 1,000 pounds per floor tile (floor tiles are standard 2'x2').

The Data Center power systems are anchored by a Liebert 80 KVa UPS connected to the building emergency power system. The building maintains a backup diesel generator to supply on-going emergency power. The UPS provide bridge power until the generator is on-line. The UPS supports 2 3-phase cabinet grade power distribution units. Under floor power whips supply rack mounted power distribution units. All data is carried in overhead ladders and trays. Network cabling is primarily Category 5, 5e and 6 copper, supplemented by LC multi-mode fiber for backbone. Workstation connections are via 100BT floor switches distributed throughout the building. Global and local traffic management is via dedicated network appliances from F5. Network components are primarily located in 2-post style relay racks. Servers are contained in enclosure style racks. The server base is Dell rackmount and blade servers (6th – 12th generation). SOS supports VMWare technology and makes efforts to leverage virtualization where possible. Storage is provided by EMC and EqualLogic SAN and NAS systems. Printing systems include Sharp networked multi-function copiers, HP digital senders, HP workgroup and personal printers.

Local network is extensively VLAN'd. Wide-Area-Network is based on an MPLS cloud, with 3 trunked T1 connections to the Los Angeles Field Office. Primary connection to MPLS cloud at Headquarters is via an OC3. SOS Headquarters connected to the internet via a 100MB circuit with DSL backup. Connection to the co-lo is via Gigaman circuit. Connection to the State Data Center (OTech) is via a DS3. SOS makes efforts to support defense-in-depth and diversity of design and intrusion detection and prevention services. SOS actively scans the entire network for vulnerability assessment and remediation.

¹ Uptime Institute: <http://www.uptimeinstitute.com>

Backup is on an EMC DataDomain system using deduplication, compression and encryption and all backup is replicated to an identical system offsite (co-lo). SOS uses EMC/Legato Networker backup software. Backup retention period is typically 45-days, although special conditions exist for some systems and operations. SOS is seeking a separate independent provider for backup/restore and disaster recovery for future agency projects (See RFI for Business Resumption Disaster Recovery).

Operating systems in use are primarily Microsoft Windows and RedHat Enterprise Linux for servers. Legacy systems operate Tru64 Unix and Fedora. Desktop operating systems are Microsoft Windows. Office productivity tools include Microsoft Office (Word, Excel, PowerPoint, Project, Visio, Outlook), Adobe Acrobat, Rumba, and Internet Explorer. SOS uses: Microsoft SQL and Oracle databases, Microsoft Exchange email and BlackBerry Enterprise services for messaging. Web services are provided by Microsoft IIS and Apache. SOS operates a multi-domain Microsoft Active Directory forest with 2 sites and tiered DNS.

SOS infrastructure systems utilize SNMP-based reporting and monitoring systems. SOS uses Dell OpenManage, Altiris CMS, SolarWinds Orion and TDi ConsoleWorks for systems and element management. SOS follows NIST standards for system hardening. Systems are monitored for overall performance, health, vulnerability assessment, space utilization and security compliance.